

FIBER AMPLIFIER HAVING AN ANISOTROPIC NUMERICAL APERTURE
FOR EFFICIENT COUPLING OF PUMP ENERGY

ABSTRACT OF THE DISCLOSURE

- 5 An optical fiber amplifier has an anisotropic numerical aperture to optimally couple pump energy into the pump core of a dual-clad fiber. The optical fiber consists of a dual-clad fiber having a longitudinally extending inner core, an outer core surrounding the inner core, and a cladding layer at least partially surrounding the outer core. The outer core is capable of transmitting pump energy to thereby amplify
- 10 signals propagating through the inner core. Further, the outer core is capable of accepting pump energy within a first range of acceptance angles in a first direction and within a second range of acceptance angles in a second direction that is perpendicular to the first direction. The outer core and the cladding layer are structured such that a numerical aperture of the fiber amplifier in the first direction is
- 15 different than the numerical aperture of the fiber amplifier in the second direction.

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